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THE ECONOMICS OF JITNEY BUS OPERATION

I. INTRODUCTION

Probably the most interesting experiment in urban transportation of the last decade is that being made by the owners and operators of jitney buses. An examination of descriptive data from some forty cities in nineteen states suggests that the most fitting designation of the jitney is a nondescript automobile which is held out as an agency for the transportation of the public for a nickel per passenger.

In general the jitney has no definite traffic characteristics. In some places it adheres to definite routes and has some semblance of maintaining a regular schedule. In other places it merely cruises, seeking desirable short-haul traffic. In some localities it is in readiness to serve during specified hours, even furnishing owl service; in others the time and place of its operations appear to be largely accidental and, like its entrance into the transportation field, sporadic. As was to have been expected, this has called forth a considerable amount of partisan comment, consisting on the one hand of the reasons advanced by those interested in electric railways for the summary conclusion of this interesting experiment, and on the other hand of the reasons urged by those interested in the operation of automobiles in the urban transportation industry for the permanence of their business. At the present time it is hard to determine accurately the weight to be given to certain of the arguments which have been made, and it is equally difficult to test the economic principles involved by the results so far attained. An attempt will be made, however, to set forth in the following pages a discussion of this subject which will deal particularly with the economic questions at issue and which it is believed cannot be subjected to serious criticism on the grounds of partisanship.

The use of automobiles of the ordinary pleasure type for the transportation of passengers throughout cities appears to have

had its beginning in those cities in the South and West where climatic conditions are particularly favorable to this sort of transportation. It was not until late in the summer of 1914 that jitney bus transportation was recognized as a type; and it is probably true that a very considerable impetus was given to this business by the extent of unemployment existing at that time. While no accurate and comprehensive figures are available showing the number of buses in service from time to time, a rather careful examination of such data as are available indicates that we may date the origin of the industry as of September 1, 1914. Its extent increased very rapidly until January 1, 1915, after which it fell off slightly, reaching the previous high point again on March 1. Since that time, with the advent of more favorable weather conditions and the increase in tourist travel, the number of buses in service has increased slightly. The maximum number in service at any time appears to have been about six thousand. Various factors have contributed since the latter part of 1914 to the growth of the jitney business and these will be enumerated and discussed more fully later. It is apparent, however, that unemployment in the skilled trades, the accumulation of a large stock of second-hand cars normally idle, wide advertising in the newspapers of this novel method of competition with street railways, and the appeal to a large number of people made by an opportunity to ride in a car, as is customary on the part of their more prosperous neighbors, are the principal reasons for the very rapid growth in the number of jitney buses in operation during the later months of 1914 and the early months of this year. At present, the total number of buses in operation in the cities where the development has been under way the longest is practically stationary where no regulation has been attempted, and where there is some form of control the number is somewhat less than it has been in the past. In this connection, however, it is of considerable import that while the number of vehicles has remained for some weeks practically stationary, the personnel of those interested in this industry has been changing at a rapid rate. In one instance, out of some thirty men meeting to organize a jitney owners' association none was present at a meeting of a similar number of men held a month later, although

in the meantime the number of jitneys in operation had remained about the same.

What the influence on electric railways of this type of competition may be it is difficult to predict. The jitney bus competes for business with the street car, but it competes also to a considerable extent with the taxicab and the somewhat more common method of transportation—walking. However, in certain cities there has been, since the advent of the jitney, a marked decline in electric railway revenues, traceable no doubt in part to general industrial conditions, but probably more largely to jitney competition. In small towns where the traffic is light and the length of haul short, the advantage of the jitney bus is greater than in large cities, and it may be expected to offer more serious competition to the smaller electric railways. Figures for a recent month from three cities, comparable except for size, show that for populations of four hundred, forty, and twenty thousand the decreases in passenger revenues were respectively, 60, 40, and 15 per cent. It is of course impossible to say how much of this loss was due to competition from jitney buses and how much to industrial depression, and the facts are given only for what they are worth. A somewhat detailed study of the situation, as will be shown later, indicates to the writer that this type of competition will not be permanent, because the jitney operators are exhausting their capital to make a wage which would not be attractive were industrial conditions better. The permanence of any industry, the returns from which are not sufficient to maintain the physical property as well as to pay operating expenses, is to be seriously questioned; and it is evident in some quarters that the continued existence of the jitney bus as a transportation factor has been due to the advent of the second or even third generation of investors in the industry following the exhaustion of the capital of their predecessors.

II. FACTORS AFFECTING THE DEVELOPMENT OF THE JITNEY BUS BUSINESS

Taking the matter up more in detail we will examine the factors which apparently were principally effective in promoting the development of the jitney business. From the standpoint of the

owner and operator of the jitney bus, the most favorable factors have been as follows:

1. Small investment is necessary to engage in the business. As has been previously remarked, there was at the inauguration of this business an accumulated stock of second-hand cars representing on the part of their owners a very small outlay. The practice maintained by automobile salesmen of accepting in exchange for a new car an old one at a fair figure has been made possible by the point at which the price of the new car was fixed. These second-hand cars then, taken in exchange on new cars, have been available to purchasers at a very low figure and they have also been used in the jitney business by automobile dealers who hire operators to conduct the business on a salary or on a percentage basis.

2. The industrial conditions existing during the past year, particularly during the latter months, were such that a large number of skilled laborers found themselves out of employment. Frequently these men had accumulated a small amount of capital which they have invested in new low-priced cars or in second-hand cars. A very striking instance of this occurred in a New England city where, immediately following the closing of the mills, a large number of former employees entered the jitney business. It is altogether likely that a return to better industrial conditions would eliminate from the jitney bus business a large number of men who are now willing to accept a smaller wage than they are accustomed to, or who have found that the hazards of jitney operation are less to their taste than those of the employment for which they have been trained.

3. There frequently arise conditions under which an individual is willing to make certain sacrifices in order to obtain immediate returns on a prior investment. Such is no doubt the situation in the case of a considerable number of jitney owners. These men, during more prosperous times, acquired cars which they have not for some months felt they could properly afford. To these men the opportunity to obtain a quick return on this capital invested in an otherwise unproductive piece of equipment has proved strongly attractive. They have entered the field in spite of the fact that under the customary conditions of operation they

will, before a great while, have so depreciated the car as to make its remaining value negligible.

In the foregoing we have considered individuals who could weigh the somewhat involved principles of depreciation and the accounting which should properly accompany wasting assets. There are, however, a large number of individuals to whom the future is a closed book, and these probably constitute a major portion of those who have attempted to carry passengers for various distances at a fixed charge of 5 cents. One of the unfortunate phases of this experiment in transportation is that it appears to be likely that a considerable number of those who have engaged in it have been deprived of their accrued capital through their failure to recognize the fact that profits are properly computed only after the integrity of the investment has been assured in addition to the payment of operating expenses.

4. There has been for many years no more popular subject for the newspapers of this country than the public utilities. Any institution which affects as vitally as does the average public utility, and to as wide an extent, the members of a community, carries with it a news value. As a result the competition offered to electric railways in many cities by the jitney buses has secured a publicity which the competitors of other industries could not have obtained. It is immaterial that many newspapers have conducted so-called campaigns against the public utilities in their communities, for whatever affects any considerable number of the people has perforce a place in the newspaper read by those people. An additional factor of publicity has accrued through the very obvious advertising that the jitneys have done for themselves by their movements throughout the communities in which they operate. A ride in an automobile for 5 cents has been until recently something to occasion comment and the appearance on the streets of a city of a large number of these cars carrying their advertisements on their wind shields has brought this new industry to the attention of a very considerable part of all the people.

From the standpoint of the patron of the jitney bus, there have been three factors favorable to the rapid growth of the habit of their use:

1. The novelty of going to and from one's work in an automobile, riding, as some of the jitney operators have felicitously expressed it, "on rubber and on air," has no doubt influenced many to use this form of transportation. This factor is, however, one which will decrease as time goes on. Many industries have been built up and have thrived for a short period, particularly in the amusement field, on the principle that novelty is as salable as more substantial commodities.

2. For a large part of the population of our cities, in spite of the constantly decreasing cost of automobiles, their use as a customary means of transportation is rare. No doubt a strong influence in the development of the riding habit has been the personal satisfaction which has come to the patrons of the jitney bus through a feeling, more or less definitely conceived, that they are, by adopting this means of transportation, bridging for the time being the gulf between themselves and their more fortunate neighbors in the matter of automobile riding.

3. The jitney bus is able under an unregulated status to offer certain conveniences which cannot be furnished by street railways handling passengers in larger groups. In the first place, the jitney operator is free to run his car to the curb and in fact on to a side street as an accommodation to his patron. He can vary his route at will, and there is a certain convenience resulting to passengers from this. It should of course not be overlooked that what is a convenience to one passenger may be an inconvenience to another, but with the small numbers ordinarily handled in an automobile the conflict of interest is not so certain nor extreme as is the case with the larger numbers handled in one group by electric railways.

Under the head of convenience may be mentioned the higher speeds of automobiles. This is due to three factors: the design of the automobile, its ability to detour, and the smaller number of stops necessary to receive and discharge a few passengers than many. The progress being made throughout the country in the adoption of the designated stop scheme by electric railways is tending to lessen the difference in running time of jitney buses and street cars.

The smoking privilege has very largely been curtailed on electric railway cars because only a minority of the passengers would be favored by its retention. In open automobiles smoking is presumably less offensive to those who do not indulge than it would be in a closed street car. Here, again, the possibility of conflict of interest is less in the case of the small groups riding together in automobiles than in the case of the larger number riding together in the street car. It should not be overlooked that at certain seasons of the year throughout the country, and for a major portion of the year in certain sections, considerably greater pleasure results from a ride in the open air than in a street car.

Some of the privileges and conveniences here enumerated are likely to be curtailed by regulation, but it is evident that there will always be at certain times and for certain individuals conditions which lead them to prefer the jitney bus as a means of transportation. On the other hand, while the factors here mentioned as favorable to the development of the jitney business, both from the standpoint of the owners and operators and from that of the patrons, have been developing, other factors have been exerting apparently a greater force toward the elimination of this means of urban transportation.

From the standpoint of the owner and operator these unfavorable factors may be classified as follows:

1. *Regulation.*—A rather interesting statement of the necessity for regulation indicating the point of view of a number of city governments is contained in the message of Mayor Rose, of Los Angeles, to the City Council, December 23, 1914.¹ The statements

¹ "Assuming that the 700-odd auto buses operating in Los Angeles are averaging \$3.00 a day in fares, we have a total of \$2,100, or about \$60,000 a month, subtracted from the earnings of the street railways. How does this affect the public? As is well known, the street railroads operate under franchises which entail heavy expense for street maintenance, taxes, and public improvements. It is estimated that the street railways maintain at least one-third of the streets along which their tracks run, at a cost to them of upward of \$350,000 a year. In addition, they have to bear their proportion of special assessments for street openings and for condemnation of lands for parks and other public purposes, for which their occupancy of contiguous streets renders them liable. Besides this impost they must pay their regular taxes in support of the government, amounting to about 5 cents on the dollar.

"One of the executive officers of the Los Angeles Railway is authority for the statement that for every nickel collected in fares, more than 3 cents is expended directly for labor in this city. Of the remaining 2 cents at least 1 cent goes for taxes, license,

there made are rather typical and their appeal to local interest accounts, in a measure, for the rapid growth of regulation.

The communities in which jitney buses have been most rapid in their growth have attempted to regulate them in a variety of ways.¹ The principal features covered in the earlier ordinances street improvements, and material, or four-fifths of the whole is returned whence it came, to benefit the people of Los Angeles. The remaining fifth takes care of the interest charges on the bonded indebtedness, and as many of the bonds are owned in California, a share of this last fifth also remains here.

"In contrast to this showing is the 5-cent fare paid over to the 'jitney' bus driver. Four-fifths of this sum must go for gasoline, oil, rubber tires, and to pay for the machines, for few of them are owned outright by the men operating them. It is a direct reversal of conditions. In the latter case 4 cents in 5 go out of the city; in so far as the street cars are concerned the same proportion in the nickel stays here.

"I am thus explicit because I wish to show our people the partnership interest created by the franchise regulations that bind the street railways to certain specific obligations, directly benefiting the public, as opposed to the non-regulated auto-buses having no such onerous liabilities imposed upon them. It is patent that if the street railways are losing what will amount to \$750,000 a year, the public service heretofore furnished by the street railways will be curtailed to comport with these new conditions.

"The people in the end will be compelled to depend upon the street railways for transportation. Meanwhile, the loss of revenues has affected the whole city as shown. Extensions have been necessarily blocked and the enforced economies have been reflected in a hundred different directions beyond the street railways themselves. It is they that have most seriously felt the pinch thus far, but it requires no seer's vision to perceive that the people so immediately concerned in the prosperity of the big corporations sharing their incomes with the city must suffer from the restricted revenues.

"To daily longer in our present state of irresolution and inaction as regards the 'jitney' bus is to be guilty of gross injustice to the people."

¹ Such regulation as has been undertaken through city ordinances may be classified as to the intent of its provisions as follows:

1. Requiring jitney operators to carry liability insurance or to execute a bond for \$10,000 or other substantial sum for each car operated, in order that the public may be assured of their financial reliability in the event of accident.

2. Requiring and charging a fee for a license in order that (a) the jitney shall contribute to the common funds of the community; and (b) the casual and irresponsible operator may be eliminated.

3. Providing for the regulation and licensing of drivers in the interests of safety. [From ordinance introduced in Seattle, Washington: (a) Drivers shall be at least twenty-one years of age; (b) must undergo physical examination to show fitness and ability to drive; (c) sworn testimonials of at least two citizens as to character of applicant to be filed with every application for license; (d) applicant to submit duplicate photographs—one to be filed, the other to be attached to the license and to be shown upon request.]

4. Providing for definite routes and schedules as affecting reliability of service.

5. Providing standards (loading, lighting, and heating) to promote the comfort and convenience of passengers.

6. Providing definite rates of fare.

7. Providing penalties (fines and revocations of license) for failure to comply with regulations.

The city of Denver has passed an ordinance requiring each individual contemplating engaging in the passenger transportation business to obtain a franchise.

have been followed in the later ones, and the most complete and carefully thought-out regulatory provisions have been based on a consideration of the following factors:

a) Responsibility: To accomplish this there has been generally required of the jitney owner a bond for the protection of individuals who are injured through the carelessness or negligence of the driver.¹

b) Safety: This has been promoted by fixing the requirements for drivers in such a way as to eliminate those least fit to operate cars. In certain cities a special examination of drivers is required, and in most cities which have adopted regulatory measures a complete means of identification of drivers is required for the use of the police department. Jitney operators are of course subject to existing police regulations as to traffic rules.

c) Reliability: It has been deemed necessary for the convenience of the public that routes and charges be fixed, and many ordinances contain provisions to this effect. The tendency, early observed in many cities, to use the jitney for immoral purposes has led to certain provisions being made with regard to the lighting of closed cars.

d) There appears in most regulatory ordinances provision for the licensing of jitneys and fees of various amounts have been imposed. In general these fees have not been particularly large, although there is a growing tendency to require these carriers to contribute by the means of special taxes to the extra burdens imposed upon the police and street departments in the cities in which they operate. These burdens imposed by regulations have eliminated a considerable number of the less efficient and less desirable jitney operators from the field, some because of their unfitness to operate a car and others because the added financial burden made it impossible for them to pay current expenses.

2. Community requirements.—Closely related to regulation although properly classified under a separate head are the requirements which the communities have imposed upon the jitneys in the way of contribution to public funds. Many cities have taken

¹ In one of the Pacific Coast cities, each of the three bonding companies there represented has, since the advent of the "jitney" bus, refused to issue indemnity insurance for such vehicles, and in another city, somewhat smaller, the rates for such policies have been increased from an annual fee of \$50.00 to one of \$250.00.

this step having in mind the fact that the money collected for transportation by the street railways is assessed for general purposes and any diversion of this transportation income from street railways will lessen the amount thus contributed unless the agency to which the payments are diverted has imposed upon it burdens similar to those imposed upon the street railways. In certain cities as high as 15 per cent of the money paid to street railways for transportation finds its way into the coffers of the city, and it is apparent that any considerable lessening of the street railway's income will constitute a serious decrease in funds accruing to the city from this source.¹ An interesting phase of this matter is that of paving requirements. In the days of horse-drawn vehicles it was held that since this transportation agency in its use of the public streets for gain damaged the paving to a considerable extent, it should contribute to the funds necessary to lay and maintain paving by means of payments in the nature of a direct tax. Upon the change in motive power whereby the cable and later the electric motor replaced the horse, no corresponding change was made in the assessment against the railway for paving, so that at the present time street railways face the anomalous situation of being required to instal and maintain a large amount of paving which they damage not at all, the tax being an inheritance from a time when they did contribute in some degree to the wearing out of pavement. Up to the present time no considerable progress has been made in the matter of assessing against the jitney buses an equitable share of the costs resulting from the wear of paving. It is evident, however, that in those communities in which the jitney has made serious

¹ Detailed figures of such loss of revenue are given herewith:

Company	Estimated Annual Reduction in Gross Income Due to Jitneys	Loss in Taxes to State 5½ Per Cent	Total Loss to Public 12 Per Cent
San Francisco.....	\$ 920,000	\$ 48,300	\$110,400
Los Angeles.....	730,000	38,300	87,600
Oakland.....	300,000	15,700	36,000
Sacramento.....	37,000	1,900	4,400
Miscellaneous (estimated)	513,000	26,900	61,500
Total probable.....	\$2,500,000	\$131,200	\$300,000

If the public is not to be the loser this sum must be paid in taxes by the jitneys.

inroads into the revenues of the electric railways the city treasury will shortly be under the necessity of obtaining from some other source funds for paving maintenance which have previously been furnished by the railways. A similar situation exists in regard to street sweeping, sprinkling, and removal of snow.

3. *Depreciation charges.*—As has been indicated previously, the wasting of capital through the depreciation of the automobile has not been given proper weight in many cases. As the second-hand cars, and to a less extent the new cars which have entered this field of transportation, reach a point at which they can no longer be operated, the necessity for considering depreciation is being brought more forcibly to the attention of the owners. Those who entered the business first are now rapidly being brought face to face with this necessity, and although many operators have not yet given due weight to this factor, it will have, as time goes on, an increasingly greater force in determining whether or not the jitney bus is to remain.

4. *Cost of operation.*—The chief factor tending to discourage owners and operators of jitney buses is the high cost of automobile operation. This is a subject which has been gone into with a considerable degree of care, and the results of the computations based on actual operating experience in a number of cities are such as to indicate that, neglecting for the moment the wasting of capital, the average jitney operator is unable to make a reasonable daily wage over and above his cost of operation. In Appendix A, a detailed discussion of the cost of operation is given.

Collecting the figures shown in Appendix A and putting most reliance on those coming from companies which keep cost data, a tentative summary of costs will be made. This involves first the recognition of two classes of competing vehicles, those really transient in character which are devoted to the "jitney" service from time to time by their owners, who are also the operators, and the cars owned by an individual or corporation and devoted seriously to the business. These will be operated by paid drivers.

The first class of operators will not feel the necessity of making the service bear all the elements of cost which it should, treating the matter as a casual occupation and charging against it additional

costs only. These men are put to no extra expense for housing their cars and consequently will not feel that any part of the fares collected from passengers should go for this purpose before profits are computed. A similar view will doubtless be held of taxes, interest, depreciation, etc.

Looking at the matter from the point of view of these men, the "cost" of operation is simply the expenditure for gasoline, oil, repairs, and tires, and the difference between this amount and the fares collected represents profits. The lowest reliable figure reported for these items is 5.8 cents per mile. Assuming a 2.5-mile route (round trip 5 miles) and 100 miles as a day's run, \$5.80 represents the "out-of-pocket" cost. If four passengers are hauled on each trip the fares will amount to 40 cents per round trip or \$8.00 per day, leaving a wage for the operator of \$2.20. A shorter haul or a higher number of passengers will increase the operator's wage, but it is not likely that much more profitable conditions than those assumed can be found regularly.

Considering now the case of the company which purchases machines for the service and treats the whole matter as a business proposition, allowing for all the elements of cost, we reach a somewhat different conclusion.

The costs varying with the mileage made will be placed at the figure used above, 5.8 cents per mile. Other operating expenses to be considered are insurance of all kinds, including injuries and damages, \$200.00 per year; cleaning, inspection, and housing, 30 cents per day, say \$100.00 per year; wages of driver, a minimum of \$2.00 per day, or \$700.00 per year; superintendence and management, 0.75 cent per mile, or, on the basis of 75 miles per day for 350 days per year, \$195.00 per year. This figure is based on the expenses of supervision of one of the largest taxicab companies and probably could not be equaled by a company operating less than 300 cars.

The foregoing operating expenses may be summarized at 5.8 cents per car mile plus \$1,195.00 per year. To these must be added \$240.00 interest and depreciation, and, for want of better information, \$5.00 each for state registration, personal property tax, and public vehicle license. The total then is \$1,450.00 per

year plus 5.8 cents per car mile. This includes an 8 per cent return on investment in cars (there will be little other investment necessary). Thus, excluding return and reducing the amount to a per day basis (350 days per year), we find the expense to be \$4.05 per day plus 5.8 cents per mile. The depreciation is based on 5,000 miles per year and would likely be exceeded, inasmuch as 75 miles per day or 25,000 miles per year will probably be run. The depreciation estimate of the Ford Company is \$200.00 for 5,000 miles or 4 cents per mile. The foregoing assumption reduces the rate to 0.8 cent per mile but, as stated above, the item will be handled as a yearly lump sum of \$200.00.

Allowing no return on investment, the relation between the number of passengers per half round trip and the maximum length of half round trip for various daily mileages is shown in Table I.

TABLE I
LENGTH OF HALF ROUND TRIP IN MILES

Number of Passengers per Half Round Trip	75 Miles per Day	100 Miles per Day	150 Miles per Day	200 Miles per Day
1.....	0.45	0.51	0.58	0.63
2.....	0.89	1.02	1.17	1.27
3.....	1.34	1.52	1.76	1.91
4.....	1.79	2.04	2.34	2.55
5.....	2.24	2.64	2.83	3.18
6.....	2.68	3.05	3.52	3.82

It will be observed that the maximum length of route, for an average of four fares per half round trip and an average of 150 car miles per day, is about 2.3 miles, and should the jitney be required to contribute to the public funds in the same proportion as does the San Diego Electric Railway, or 17.75 per cent of its gross revenues, the distance would be reduced to 1.94 miles; or if paving obligations were eliminated and taxes only were made proportional, that is, at 6.75 per cent of gross revenues, the maximum length of route would be 2.19 miles.

It is of considerable interest to compare the costs of transportation by the small automobile with the costs on a typical electric street railway. The following analysis, while admittedly not complete, is nevertheless, it is believed, detailed enough to indicate

rather closely the relations between the factors which control the profitable length of haul on street railways.

Table II analyzes operating expenses, depreciation, taxes, and return on investment of a \$20,000,000 street railway plant, classifying the expenses according to the factor which presumably, in each case, influences its variations. The results of this analysis are as follows:

Operating expenses, depreciation, taxes, and return, together amount to \$0.106 per car mile, plus \$0.985 per car hour, plus \$14.00 per mile of track per day, plus \$0.0025 per passenger, plus \$980.00 per day, or, since the assumed plant was operating 200 miles of track, \$4.90 per day, per mile of track.

These figures were arrived at by a study of each primary account of the Interstate Commerce Commission's classification, in the light of the experience of a number of companies, both as to the relative amount of the charges under the various primary accounts and as to the functional relation between these accounts and operation. Throughout, an attempt has been made to make the hypothetical company represent high-class service and standard practice. The extent of the concentration of service is an important factor in costs, and the assumption made in the foregoing computation is that of the typical, two-peak, traffic distribution, derived from the comparison of the results of traffic studies in a number of American cities.

Assuming a speed of $8\frac{1}{2}$ miles per hour and assuming also that the number of cars in service will be varied to correspond with the variations in traffic, so that there is a fixed number of passengers carried in each half round trip, certain conclusions may be reached.

It is of interest to note in comparison with costs of jitney bus operation that with the length of haul of two miles, which is about all the jitney bus can do for a nickel (with an average of four passengers per half round trip), and with a rush hour headway of one minute, the electric railway would require about 11 passengers per half round trip to make operation profitable at 5 cents per passenger. A car with 20 passengers can be run on such a route and schedule as this for a 3-cent fare. A passenger riding 10 miles, however, in a car which is carrying on the average 20 people per

TABLE II
ANALYSIS OF ELECTRIC RAILWAY COSTS

TOTAL	RELATED TO CAR MILES RELATED TO CAR HOURS			RELATED TO MILES OF TRACK			RELATED TO NUMBER OF PASSENGERS			ON YEARLY BASIS
	Amount	Percent-age	Amount	Percent-age	Amount	Percent-age	Amount	Percent-age	Amount	
Operating expenses, including depreciation.	\$ 3,093,000	\$ 877,917	28.38	\$ 1,501,867	48.56	\$ 342,654	11.08	\$ 223,553	7.22	\$ 147,009
Taxes.	360,000	141,624	39.34	54,000	15.00	125,820	34.95	38,556
Return on investment.	1,600,000	629,440	39.34	240,000	15.00	559,200	34.95	171,360
Total.	\$5,053,000	\$1,648,981	32.63	\$1,795,867	35.54	\$1,027,674	20.34	\$223,553	4.42	\$356,923
	15,500,000 car miles	1,825,000 car hours	200 track miles	90,000,000 passengers	365 days, \$980.00 per day or \$4.00 per track mile per day	7.07				
	10.6 cents per car mile	98.5 cents per car hour	365 days, \$14.00 per track mile per day	0.248 cents per passenger						

half round trip would have to pay something over 12 cents per ride to cover the cost of his transportation. Take for example four lines, respectively 2, 3, 5, and 10 miles in length, on each of which the fare is 5 cents. Assume that 3,000 people ride on each in 100 half round trips. A fare based on cost would yield the railway \$610.50, while the flat-rate 5-cent fare yields \$600.00, as indicated in Table III, the two figures in this case being in substantial agreement.

TABLE III

LENGTH OF HALF ROUND TRIP, MILES	NUMBER OF PASSENGERS		RECEIPTS ON COST BASIS		RECEIPTS ON FLAT-RATE BASIS	
	Per Half Round Trip	Total	Per Passenger, Cents	Total, Dollars	Per Passenger, Cents	Total, Dollars
2.....	30	3,000	2.25	67.50	5.0	150.00
3.....	30	3,000	3.10	93.00	5.0	150.00
5.....	30	3,000	5.00	150.00	5.0	150.00
10.....	30	3,000	10.00	300.00	5.0	150.00
Total.....		12,000	5.09	610.50	5.0	600.00
Total excluding 2-mile line.....		9,000	6.03	543.00	5.0	450.00
Total excluding 2- and 3-mile lines.....		6,000	7.50	450.00	5.0	300.00
Total excluding 2-, 3-, and 5-mile lines.....		3,000	10.00	300.00	5.0	150.00

The elimination of the 2-mile trip would clearly require that 6 cents be made the flat rate for the remaining lines; and the elimination of the 3- and 5-mile lines would raise this flat rate first to 7.5 cents and then to 10 cents.

It must be evident then that the jitney bus can compete with the electric railway in the matter of the cost of operation only under very special conditions. It should be borne in mind that each passenger now riding 2 miles on an electric car contributes something toward the cost of carrying the passenger who rides 10 miles. If the jitney bus, then, is permitted to compete with electric lines for this short-haul business, it is obviously but a step toward the zone system of fares on the street railways.

From the standpoint of the patrons there are four principal reasons for a decline in the extent of jitney patronage:

1. While under favorable conditions the jitney bus may and does afford a comfortable and convenient means of transportation, the situation is quite otherwise in cold and rainy weather. It has also been observed by those who have patronized the jitneys that the advertised ride on rubber and air is not always realized, and that the high percentage of accidents and delay results in a schedule frequently less rapid than that of the electric railway. Scant protection from the weather, poorly driven cars, springs and seats past the period of maximum efficiency and comfort, and many other factors have, as the cars in service have aged, decreased the comfort and convenience which they originally offered.

2. The crowding which has come to be recognized as a necessary part of street-railway operation during certain periods of the day has not been escaped by those who have changed their means of transportation to that of the automobile; and during certain hours many passengers are forced, if they patronize the jitneys, to ride on the running-board, on a side door, or, as has been noted occasionally, on the lap of another patron.

3. Even in those cities which have prescribed definite routes, it is not always possible for a passenger to count on an opportunity to patronize the jitney. Routes are shifted in spite of agreement to the contrary, and what is a more serious inconvenience, cars are withdrawn from service at the will of the operator. The result is that it is impossible to predict what will be the frequency of jitney operation on any street at any time.¹

4. It has been borne in upon the minds of more thoughtful individuals that there are several elements of danger in a jitney bus which are not so small as to be overlooked. The cleanliness

¹ *Oakland Jitney News*: "There are a number of operators who belong neither to the Association nor any other body, preferring to operate as free lances, over any run which takes their fancy. It is up to the drivers who are to blame to end their tactics before they bring discredit upon the [Jitney Bus] Association [of Oakland, California].

"Don't lay up your car when it rains and leave your route inadequately served. There was just one machine plying between Oakland and Alameda last Tuesday. The driver of that one was not afraid of getting wet."

The *St. Louis Times*, January 30, 1915, contains the following: "After a three days' lay-off, due to the extreme cold weather, the jitney bus reappeared Saturday morning, in time to reap the fruits of added congestion, due to the bad weather."

of these cars is not supervised, and there is some danger of contagion, although this is probably not great. The principal danger is that of accident, due in part to careless driving by certain individuals, and in part to the fact that the large increase in the number of automobiles has in many districts exceeded the safe capacity of the streets. Numerous accidents resulting in injuries and death have been noted, and it is of particular interest to observe that in certain cities the earnings of the street railway show, following each accident, an immediate and perceptible increase. While it is not easy to reduce the accident hazard to figures, it is obvious that it is considerably greater in the case of the jitney than in the case of the street car, with which it competes, and this factor has led many patrons to abandon jitney transportation. There is an additional danger which results from the close proximity of strangers in a rear seat of an automobile, particularly in the evening, and frequent complaints have been made as to the operation of pick-pockets and as to the attentions which have been forced upon unwilling fellow-passengers by those more socially inclined.

III. LEGAL STATUS OF THE TRANSIENT CARRIER

The following paragraphs, quoted from a report on the cost of jitney bus operation prepared by the Bureau of Fare Research of the American Electric Railway Association, indicate that the powers of municipalities to regulate transient carriers are well defined. To whatever extent it may in the future be deemed advisable to carry regulation of the jitney bus, such measures as have been outlined in a preceding paragraph will probably meet with little opposition upon the part of the courts as being outside the rights and powers of the municipalities. It is of particular interest in this connection to note that a considerable part of the regulation of electric railways has come about as an inheritance from their predecessors, the horse-drawn cars and buses.

According to a recent [1914] decision of the Oregon courts a "common carrier" is one who, as a regular business, undertakes to transport persons or commodities for all who will pay his charges.¹ According to this definition a "jitney" bus is undoubtedly a common carrier. Moreover, since a state

¹ *Anderson et al., v. Smith-Powers Logging Co. et al.*, 139 Pac. Rep. 736.

legislature has power, subject to constitutional limitations, to prescribe reasonable regulations for the conduct of common carriers . . . and may do so through a commission,¹ a way is open for the various railroad and public utility commissions to assume regulation of the jitney bus industry. This is further borne out by the present New York and Illinois statutes requiring a permit from a state commission for the running of bus lines.²

It may be urged that "jitney" buses are taxicabs and are therefore immune from regulation, and yet a taxicab company, in the business of transporting persons for hire from one part of the city to another and holding itself out to carrying one and all, is a common carrier of passengers,³ and therefore subject to regulation.

Many municipalities possess, through charter provisions, power to enact and to enforce ordinances regulating the use of coaches, hacks, and other vehicles transporting passengers and "to license, tax and regulate vehicles," etc., and the courts have held that such ordinances, when based on charter provisions, are valid.⁴

Wherever a municipality does not already possess power to regulate the "jitney" buses, such power may easily be conferred upon it by the legislature. A legislature can, in the exercise of the police power, regulate the use and driving of motor vehicles,⁵ and its power over streets may be delegated to the municipality.⁶ A legislature may authorize a tax on the privilege of using streets for vehicles.⁷

When such power is conferred upon a municipality, its ordinance taxing the use of its streets by means of a license imposed on specified classes of vehicles . . . in order to raise revenue to maintain and repair the streets is valid.⁸ In classifying such vehicles according to wear probably resulting to the streets from their use and not according to value a city is within its

¹ *P. S. Commission, Md. v. Northern Central Railway Co.*, 90 A. 105.

² Laws of New York, chap. 495, secs. 1, 2, 25, in effect May 13, 1914; Laws of Illinois, Hurd's Revised Statutes, 1913, chap. 111, A, sec. 55, in effect January 1, 1914.

³ *Van Hoefen v. Columbia Taxicab Co.*, 162 S.W. 694.

⁴ *Kansas City v. Richardson*, 90 Mo. App. 450. See also *Commonwealth v. Gage*, 114 Mass. 328 (1873), prescribing rates of fare to be charged by hackney coachmen; *Commonwealth v. Estodder*, 6 Cush. 562 (1851), prescribing routes of travel for omnibus lines; *St. Louis v. Green*, 70 Mo. 562 (1879), imposing tax on all vehicles used in the streets; *State v. Foley*, 31 Iowa 527 (1871), imposing fines upon persons impeding progress of street cars by allowing vehicles to remain on track; *Commonwealth v. Matthews*, 122 Mass. 60 (1877), taxing stands for vehicles for hire; *Scudder v. Hinshaw et al.*, 33 N.E. 791, prescribing traffic regulations.

⁵ *City of Newport v. Merkel Bros. Co.*, 161 S.W. 549.

⁶ *Bingham v. Kollman et al.*, 165 S.W. 1097.

⁷ *City of Ft. Smith v. Scruggs*, 69 S.W. 679.

⁸ *City of Terre Haute v. Kersey et al.*, 64 N.E. 469.

rights.¹ Fixing the amount of a license fee for the privilege of doing business, high enough to make it partake of the character of a privilege tax, as well as to provide a means for the regulation of the business is not unconstitutional and does not constitute an unwarranted interference with the rights of citizens or of private property. This applies to motor as well as to horse-drawn vehicles.² Such a license fee is not unconstitutional for want of uniformity, in that carriages and vehicles used in ordinary business are untaxed, the difference in such vehicles and the extent of their use of the street forming a proper basis for legislative classification.³

A motor vehicle is subject to a license tax on "hacks, cabs, omnibuses, and other vehicles for the transportation of passengers for hire," even though it was unknown and not in use at time of passage of the act imposing such license tax.⁴

It is interesting to note that where a legislature had authorized cities to license hackmen, draymen, omnibus drivers, cabmen, expressmen, and all others pursuing like occupations and to prescribe the license fees that should be paid or issue licenses "to such persons as may apply to keep and use omnibuses or vehicles in the nature thereof" and to charge a "reasonable annual sum therefor," the courts, both state and federal, have upheld the validity of ordinances extending the application of this authority to street cars.

Thus it was held:⁵ "The only distinction which can be called substantial between the two classes of occupations [omnibuses and street cars] is that one carriage goes upon iron rails on a regular track, with wheels, and the other carriage goes with wheels upon the ordinary street way."

Similarly,⁶ the Supreme Court of Pennsylvania held that "vehicles in the nature of omnibuses" was sufficiently comprehensive to include street cars. Again,⁶ it was held in an action based on contract that by development and improvement the modern railway car had been evolved from the old-fashioned stage-coach, which implied a vehicle or conveyance running on wheels for carrying passengers, and, therefore, that the city was entitled to recover the same license fees previously exacted for stage coaches.

Based largely upon these common-law obligations, state regulatory measures applying directly to "jitneys" have been introduced in several of the western legislatures and in Massachusetts. The legislature of Texas is to con-

¹ *Gundling v. City of Chicago*, 177 U.S. 183; *Sterling v. City of Bowling Green*, 26 Ohio Cir. Ct. R. 581.

² *City of Des Moines v. Bolton*, 102 N.W. 1045.

³ *City of Henderson v. Lockett et al.*, 163 S.W. 199.

⁴ *Allerton v. City of Chicago*, 6 Fed. Rep. 555.

⁵ *Frankford & Philadelphia Passenger Railroad Company v. City of Philadelphia*, 58 Pa. St. 119, and *Johnson v. Philadelphia*, 60 Pa. St. 445.

⁶ *City of New Orleans v. New Orleans City & Lake Railroad Company*, 40 La. Ann. 587.

sider a measure prohibiting the operation of other lines of transportation upon streets occupied by electric railway lines. Measures have been introduced in the California legislature declaring auto buses to be common carriers and prescribing a tax upon them similar to that paid by the street railways. In Washington and other states similar legislation is pending. The Massachusetts Street Railway Association, in an effort to prevent and avoid the disastrous conditions in the West, has introduced a regulatory bill in Massachusetts, defining conditions under which buses may be operated and providing responsibility for damages, and will urge its enactment.

IV. THE ECONOMIC STATUS OF THE JITNEY BUS

We will look now at the economic status of the automobile engaged upon the public highways as a common carrier. It appears that this amounts to a reappearance of a type of transportation which vanished with horse-drawn vehicles upon the introduction of electric transportation, and it will be worth while to consider from various standpoints whether or not under present circumstances this type of transportation can return to supersede the more systematic type furnished by electric railways. While there are at present, in various cities, associations of jitney operators, not much progress has been made in the realization of their common interest by those engaged in the industry. With such a realization there would tend to come combinations and the formation of companies to take over and control the present scattered businesses. Such a development would greatly increase the ease of regulation and the effectiveness of control, and would probably result in making the possession of a franchise a condition of operation. Such changes do not appear to be a matter of the immediate future.

Obviously, the jitney bus will continue to exist if it can render a certain service at a less cost than its major competitor, the electric railway, or if it can render a better service at the same cost. The word cost in the previous clauses must be assumed to include a proper contribution to state and municipal funds. In other words, the existence of a subsidized industry, which is what the jitneys will amount to if they are relieved of their proper share of the burdens of the community, may or may not depend upon the factors which will be analyzed in an attempt to determine whether or not under free competition the jitney business will be permanent.

The question of the success of this experiment in urban transportation depends primarily upon three factors: (1) Is it profitable for the owner and operator? (2) Is it able to furnish a service to, and supply the needs of, a considerable portion of the community at a price within the ability of its natural patrons? (3) Is it upon general grounds advantageous to the community? Obviously an industry might exist and secure, at a profit to itself and at a rate within the reach of a considerable number of people, business which it would be contrary to public policy to permit to exist. We have discussed somewhat at length in previous pages the question of the cost of operation. Assuming that the operator of the jitney bus bears his proper share of the expenses of the community as a whole and that he protects his investment, it becomes evident that there is only a relatively small part of the total transportation business in any community for which he can compete. Under these circumstances transportation by automobile at a 5-cent fare cannot supplant for the city as a whole the transportation furnished by the electric railways. The existence then of competition for what may best be termed "short-haul" business¹ appears likely to place upon the electric railways a burden such that it will be necessary, if operation is to be continued and the property maintained, to charge higher rates to those patrons who receive greater service. In other words, if there are eliminated from the business of the electric railway the short-haul passengers, the handling of whom presumably shows a profit, the passengers who are at present carried a considerable distance and the handling of whom shows a loss must in the future pay more than they do at the present. It is not within the province of this article to undertake to say in detail how such a change in fares will be brought about nor what effect the adoption of a zone system of fares would have upon the community in general. However the matter might be adjusted, it is apparent that such a change in the rates of fare on electric railways could not be accomplished without some difficulty and perhaps some loss.

¹The *Kansas City Star* quotes W. H. Miller, jitney promoter, as saying: "We are trying to select the short, profitable hauls, not more than two miles or two and a half at most."

The whole matter of transportation is a vital factor in city building, and any situation tending to bring about a change in the system of charging for urban transportation should be given attention by those within whose province it is to give thought to the larger interests of the community as a whole. In addition to the bearing which jitney competition appears to have on the rate of fare for a distance of over one or two miles, which includes of course a considerable portion of suburban traffic normally handled on urban cars at a single fare, it should be noted that the confusion resulting from the addition of a large number of small independent transportation units to the present complex traffic in city streets is a matter of grave importance. Various computations would indicate that it would be not an unusual condition during certain periods of the day to have the average distance between automobiles, engaged in passenger transportation, five feet or less, if these cars were to replace the electric cars now furnishing the same service. Such a situation would doubtless be considered intolerable. It may be urged that the jitney business is in its infancy and that improvements in design of these passenger-carrying vehicles will so reduce the cost of operation as to enable them to compete upon a broader basis for the business of the electric railways. That such improvements in the art are possible cannot be denied; and as there have been improvements tending to reduce costs in very many of the mechanical arts, it will be indeed peculiar if the costs computed in this article are not lowered at some time in the future. There will still remain, however, in all probability, some reluctance on the part of cities to give up a major portion of their streets to passenger-carrying vehicles for the rendering of such service as is now being rendered by the electric-railway cars which use but a small part of the street.

It is such cases as these which point out the need of scientific traffic surveys in every city. It is as important for city governments to know accurately the movements of population from hour to hour as it is for a street-railway company to have this information, and it is apparent that this is a matter which will be given increasing attention in the future. The proper location of bridges and tunnels, both for pedestrians and for vehicular traffic, is a

matter which cannot be determined except by an accurate knowledge of the hourly movements of the people in the community. That these change from time to time is well known to those who have considered the matter, and the future development of means of travel through the various parts of any city should be planned always in the light of the best obtainable information as to the habits of its people. The use of a car 14 feet long to carry 4 passengers is an extravagance which few cities can afford when cars seating 50 people are but 50 feet in length. It may be urged that experience in Europe has indicated that cheap transportation in small units by transient vehicles has a legitimate place in the transportation scheme of any community. It should be observed, however, that conditions abroad are somewhat different from conditions in this country. In general, workers in Europe live closer to their places of employment than they do in this country. It appears that the average mileage per ride is considerably less in those countries than it is in this. The zone system of fares is very generally employed on European electric railways, and a considerable part of the population other than the laboring classes considers it beneath its dignity to walk a distance which in this country the average citizen walks with ease and without a thought as to its effect upon his social status.

V. CONCLUSION

In conclusion it would appear that the jitney bus cannot continue long to carry passengers the distances which it is now attempting to carry them at a 5-cent fare. The jitney bus, however, can compete with the electric railway for short-haul business. Improvements in automobile design tending to lessen depreciation and operating costs will probably from time to time change the maximum length of ride for which the jitney can profitably compete with the electric railway. It does not appear likely, however, that, within the near future at least, automobile transportation can be furnished to communities as a whole as efficiently and as economically as a similar amount of transportation can be furnished by the electric railway. The certain result of the taking of the more profitable business from the electric railways is an increased fare

for the balance of the business. Assuming that the jitney business is regulated to a sufficient extent to protect to a reasonable degree the safety of the passengers and to promote as far as may be the reliability and regularity of the service, the interest of the city has not as yet been completely cared for. Streets are dedicated to the use of the public, and they will in the long run be so administered as to provide the greatest good to the greatest number. On this basis we may look to see considerable attention given to the fact that passenger transportation by automobile is wasteful of space in the city streets.

Considering all these factors, it does not appear that this most interesting experiment in urban transportation will result in the displacement of the present means of transportation, although for the period during which this experiment is being carried on individual instances will doubtless appear where the jitney bus can be operated profitably and with due regard to the interests of the people as a whole. It may not be out of place to suggest that a limited number of people would probably be glad to pay 10 cents or even 15 cents a ride for service of a somewhat higher character than it is possible for electric railways to furnish. The number of such people is not so large that furnishing them with this transportation de luxe will seriously encumber the streets; and it appears at the present time probable that, as the individuals who have already engaged in the jitney business discover that their profits are less than were anticipated, a certain number of them will try the experiment of furnishing their service for a fare of 10 cents. Whether the operation of the "double jitney" would be a profitable business or not it is not easy to determine; but it is quite likely that there is some form of transportation of this general nature at a rate between that charged at present by taxicabs and the rate charged by electric railways at which automobile transportation will be a profitable venture. It appears quite certain, however, that at the present rate of fare the jitney bus experiment is doomed to failure.

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APPENDIX A¹

I. JITNEY BUS COSTS

1. *Cost of operation.*—It will serve our convenience and facilitate comparisons to examine the various elements of the cost of operation of jitney buses under the general groups of accounts in use by electric railways.

2. *Maintenance of way and structures.*—Under this head there will be normally little expense for the man who operates his own car. Companies, however, which maintain their own garages or own and maintain general office buildings will incur expenses properly listed as Maintenance of Buildings, Fixtures, and Grounds, and as Depreciation of Structures. Inasmuch as the greater part of the operators of jitneys own their cars and keep them in sheds and stables not otherwise in use, no cost has been considered under this head. Individual jitney owners are under no necessity of counting as part of the cost of operation, taxes, interest on the investment in, and the cost of maintenance of, property otherwise idle. Such items have, however, been considered in part under the caption of garage costs.

3. *Maintenance of equipment.*—Some rather extensive cost figures have been kept during the past year by a company which is a member of the American Electric Railway Association. This company operates several types of cars in different cities, and its records based on twenty Ford cars in service for eight months disclose an expense of 1.3 cents per mile for maintenance of chassis and body. Tires cost 1.2 cents per car mile, and miscellaneous expenses for maintenance and replacement of parts amount to 0.3 cents per car mile, or a total for the three items of 3.3 cents. These costs do not allow for depreciation and replacement of the car. Figures for these three items from two other reliable sources and covering other types of cars are 7.71 cents per car mile, and 4.56 cents per car mile.

4. *Power.*—Under this heading there must be included the cost of gasoline and oil, and engine maintenance. For the Ford cars above referred to, the cost for those items was slightly over 2.5 cents per car mile, while the amounts for the other two types of cars, were 4.43 cents per car mile and 2.39 cents per car mile respectively.

5. *Conducting transportation.*—Under this heading there will be included, besides certain charges such as cost of tickets, cost of gas or oil for lighting, cost of signs on cars, etc., the wage of the driver. The figures which the Bureau has been able to obtain for this item show a wide variation. One jitney company pays 2 cents per mile; one 30 cents per hour; another pays \$8.00 per week to foreigners for this type of work. Still another company is reported as paying \$15.00 per week, and one pays the driver 35 per cent of the gross receipts. Inasmuch as the possession of a license is necessary in many cities if one wishes to operate a car, it seems that the minimum wage which can be paid will not be greatly below \$2.00 per day. It is reasonable

¹ Condensed from report on *Cost of Service on the Jitney Bus*, by the Bureau of Fare Research, American Electric Railway Association.

to suppose that it is not economical to attempt jitney operation with less skilled employees than those who can command \$2.00 per day. The man who drives his own car may donate his time to the business and count as profit his net revenue. This is not likely to be the general practice, however, and we may safely assume that the owner-operator will consider his time worth at least \$2.00 per day.

During times when employment is scarce and labor is plenty, a wage less than \$2.00 a day may be paid, particularly in the case of men and boys operating cars for three or four hours per day in addition to some other occupation. There is reason to believe, however, that if the jitney bus should achieve permanence in any community, it would meet labor conditions approaching those on electric railways. It is the common experience in industry that low wages and long hours are succeeded, as the industry becomes established, by shorter hours and higher wages. Certainly there would be, in the case of jitney operation, a tendency toward standardization, and \$2.00 per day appears to be a reasonable estimate.

6. *Traffic*.—There will usually be little to be considered under this heading. An occasional payment for advertising and solicitation may occur, but this in general may be neglected and may to a certain extent be offset by revenue from advertising.

7. *General and miscellaneous*.—Injuries and damages and insurance will be the most important items in this group and will in many instances be by far the largest expenses to be met by the owner-operator.

The greater danger to pedestrians from motor vehicles arises from inherent qualities of these vehicles. They run rapidly, quietly, and depart from a fixed path at the will of the driver, turning into side streets and coming from behind other vehicles with confusing quickness. They are not all driven by men trained to their work and freed from distraction in the performance of it. Many observations made on the care exercised at railroad crossings put automobile drivers at the bottom of the list.

In Cincinnati, the Baltimore & Ohio system found that 3.4 per cent of the teamsters and 5 per cent of the pedestrians complied with the admonition to stop, look, and listen, while out of the 184 drivers of motor vehicles none took proper precautions.

Carelessness in the operation of motor vehicles is emphasized in a report of the Safety Bureau of the El Paso & Southwestern Railroad. Three thousand six hundred and seven automobiles were observed crossing railroad tracks in El Paso in one week. Of the drivers of these, 2,907, or 80 per cent, looked in neither direction, 620, or 17 per cent, looked in one direction only, and 80, or 2 per cent, looked both ways before crossing. Of the 2,907 who took no precautions, over 10 per cent crossed at a speed above 20 miles per hour.

Of general interest in this connection is the statistical information concerning deaths and injuries occurring in the public highway, compiled by the National Highways Protective Association. These figures refer only to pedestrians knocked down or run over, or to occupants of vehicles killed or

injured, but not themselves participants in the blame for the accident. These statistics indicate very clearly the danger to pedestrians from motor vehicles.

The accompanying table gives the fatalities in New York City and in New York State, excluding New York City for several years:

NEW YORK CITY

	1910	1911	1912	1913
Automobile.....	112	142	221	302
Electric railway.....	148	109	134	108
Wagon.....	211	172	177	170

NEW YORK STATE

EXCLUSIVE OF NEW YORK CITY

	1910	1911	1912	1913
Automobile.....	132	127	149
Electric railway.....	67	79	79
Wagon.....	31	28	32

The rates for insurance indemnifying automobile operators against loss through injury and damage suits are not as yet based upon sufficient experience to render them stable, and, where jitney buses become more numerous, they are being increased.

In one of the Pacific Coast cities, each of the three bonding companies there represented has, since the advent of the jitney bus, refused to issue indemnity insurance for such vehicles, and in another city, somewhat smaller, the rates for such policies have been increased from an annual fee of \$50.00 to one of \$250.00.

At present the rate for a Ford car operated for hire in New York City is \$150.00 per year. To this sum should be added insurance against damage from fire, against damage from collisions, against loss by theft, and against judgments obtained by employees. The rates for these kinds of protection vary, and while the owner-operator will not need protection against his liability as an employer, a little life or accident insurance may be considered a good investment. Approximately these risks can be pooled through insurance for \$200.00 to \$300.00 per year.

Garage expense, cleaning, and inspection may be figured at from \$12.00 to \$20.00 per week. This expense will be avoided by owner-operators of single cars, but is nevertheless a real outlay which must be taken into account where several jitneys are operated by employees.

The experience of taxicab companies is also of interest. The accompanying figures were prepared some months ago by Mr. Benedict Holden, former counsel of the Mason-Seamon Taxicab Company operating in New York City. They are presented without extended discussion as a contribution to the subject

from one closely associated with the operation of automobiles for hire and in possession of pertinent information. The Ford town car is the one assumed in the accompanying memorandum prepared by Mr. Holden:

EXPENSES PER MILE

1. Driver's wages, clothing, and gasoline	\$0.0407
2. Lubricants.....	.0005
3. Tires.....	.0200
4. Washing, polishing, and garage attendance0070
5. Running repairs, and mechanical repairs0085
6. Materials for running and mechanical repairs0033
7. Body repairs, painting, upholstering, etc.....	.0017
8. Rent.....	.0056
9. Light, heat, power, and maintenance.....	.0014
10. Taximeters.....	.0020
11. Licenses.....	.0007
12. Injuries and damages.....	.0050
13. Office and supervising salaries.....	.0076
14. Advertising.....	.0111
	<hr/>
	\$0.1151

These figures were based on the assumption that 15,000 miles would be run annually per car. If greater mileage were made, certain of the costs per car mile would be reduced. Items 1, 2, 3, 5, 6, 7, and 12, which amount together to about 8 cents per car mile, are fairly constant per car mile, but the other items, 4, 8, 9, 10, 11, 13, and 14, are nearly independent of the miles run. If a car made 25,000 miles instead of 15,000 miles in a year, the cost per mile would be proportionately decreased, or 2.1 cents instead of 3.5 cents as shown in the foregoing table. The cost per car mile now becomes 10.1 cents instead of 11.5 cents. Eliminating advertising and rent of taximeters, which expenses the jitney owner will reduce to a minimum, or avoid entirely, the total becomes 9.3 cents per car mile.

To this figure there should be added at least 0.8 cent per car mile for depreciation of the car, so that on the basis of Mr. Holden's figures a car should earn at least 10 cents per mile to pay expenses.

The following recent estimate on a large car by the manufacturer is given as throwing some light on the methods used in figuring costs:

	Per Year
Driver's wages, at \$15.00 a week.....	\$ 780.00
Interest on \$6,030.00 (being the cost less tires)	361.80
Depreciation (at 10 per cent on \$6,500.00).....	650.00
Storage (including washing, polishing, and inspection, at \$20.00 a month).....	240.00
Expenditures for repairs.....	<hr/> 500.00

Making a total of.....\$2,531.80
and operating charges:

Gasoline 15 cents a gallon; oil, 30 cents a gallon; and tires, \$470.00 a set (8,000 miles guaranteed), giving an operating cost of \$0.0789 a mile.

If this car makes eight miles per hour for nine hours each day and operates 350 days per year, or say 25,000 miles per year, the costs which do not vary with the mileage become 10 cents, or together with those that do, the cost is 18 cents per mile.

Table I (p. 693) summarizes the detailed figures previously referred to.

8. *Fixed charges*.—In addition to ordinary operating expenses, the items of depreciation and interest are essential parts of the cost of service.

By far the largest number of jitney buses in service are Ford 5-passenger touring cars. These require a minimum investment and appear to be as cheaply operated as any cars of their capacity. A new car of this type costs about \$500.00 at Detroit, and the profit-sharing dividends of this company care for a little more than the freight on the average car put into this service. The private user receives an allowance on an old car turned in on the purchase of a new one which is based on an estimated normal use of 5,000 miles for one year. The depreciation to be charged for one year's use is the difference between the cost of a new car and the allowance for a car one year old. This difference is approximately \$200.00 at the present time, and, although price changes may alter this amount, there will doubtless be a gradual adjustment by the manufacturer of both the cost of a new car and the allowance for an old car which will tend to keep this figure reasonably constant.

It should be noted that \$200.00 is the minimum depreciation and depends upon the condition of tires, engine, etc., and of course assumes that the car has met with no accident. It is based, as stated above, on an estimated normal yearly operation of 5,000 miles. For two years' operation, or 10,000 miles' operation, the minimum depreciation is about \$275.00. It appears that operating costs are somewhat higher during the second year, although probably not enough so to account entirely for the fact that many companies operating a considerable number of cars turn them in each year toward new cars. There seems little reason to doubt that, considering the excess of mileage over 5,000 made yearly by the jitney, the minimum depreciation, whether new cars are secured each year or on alternate years, will be \$200.00.

The interest on the purchase price at 8 per cent is \$40.00 per year and the annual cost of maintaining the investment is \$240.00. Similar figures furnished by individual owners of private cars range from \$160.00 to \$225.00. These figures seem to confirm the reasonableness of the estimate of \$240.00.

The items of taxes and license fees may be considered together. The minimum license fee for state registration is in most cases \$5.00. In addition to this expense the automobile will in many states be taxed as personal property, and, while tax rates vary greatly, \$5.00 is probably a minimum amount to be estimated for this item of cost. In many communities a license is now required to operate a public bus or hack. There is no uniformity of license fees, and no estimate can be made as to the amount of the average fee.

TABLE I
OPERATING EXPENSES

ITEM	TYPICAL JITNEY CARS		MR. HOLDEN'S ESTIMATE		LARGE AUTOMOBILE	
	CENTS PER CAR MILE	DOLLARS PER YEAR	CENTS PER CAR MILE	DOLLARS PER YEAR	CENTS PER CAR MILE	DOLLARS PER YEAR
Way and structures						
Equipment	4.56 to 7.71					
Car body and chassis	2.1		1.35			
Tires	1.2		2.0			
Power	2.39 to 4.43					
Engine					5.9	
Gasoline						
Lubricants						
Conducting transportation:						
Drivers	2.0	416 to 832				
Garage expense						
Traffic						
General and miscellaneous:						
Supervision and office expense					105	780
Injuries and damages					167	240
Insurance						
					219	
					75	

APPENDIX B

Data from a southern city, which is believed to represent a typical situation, are here shown, and would indicate that the jitney operator is not making a profit sufficient to enable him long to continue without the exhaustion of his capital.

TABLE I
CENSUS OF JITTERY CARS
February 2, 1915

Total cars operated.....	714
Cars operated less than 2 round trips.....	442
Cars operated more than 2 round trips but less than 4 hours.....	94
Cars operated 4 hours or over but less than 8 hours.....	105
Cars operated 8 hours or over but less than 10 hours.....	41
Cars operated 10 hours or over.....	32

714

TABLE II
DATA FOR ALL CARS

Trips operated.....	4,176
Hours operated.....	1,670
Miles operated.....	23,380
Speed in miles per hour.....	14
Passengers carried.....	18,028
Increased 20 per cent for short haul, etc.....	21,634
Revenue at 5 cents each.....	\$1,081.70
Average daily revenue per car.....	1.51
Average revenue per trip.....	0.259
Average revenue per hour.....	0.648
Average revenue per mile.....	0.046

For the purpose of arriving at the earnings of cars in the jitney service, we have eliminated the 442 cars shown as operating less than two round trips. This excludes practically all the cars operated by individuals who, following their regular pursuits, haul passengers only during rush hours. Deducting these 442 cars, we have the data given in Table III.

TABLE III

Cars operated.....	272
Total number of trips.....	3,888
Total number of hours.....	1,551
Total number of miles.....	21,714
Speed in miles per hour.....	14
Passengers carried (including 20 per cent increase).....	20,268
Revenue.....	\$1,013.40
Average daily revenue per car.....	3.72
Average revenue per trip.....	0.26
Average revenue per hour.....	0.653
Average revenue per mile.....	0.0465
Average length of trip.....	5.59 miles
Average length of half round trip.....	2.8 "

TABLE IV
SAMPLE CAR PERFORMANCE

LINE	LENGTH OF TRIP	TRIP TIME IN MINUTES	NUMBER OF TRIPS	HOURS	MILES	PASSENGERS	REVENUES			
							Total	Cents per Trip	Cents per Hour	Cents per Mile
A.....	4.66	20	24 $\frac{1}{2}$	8:10	114	150	\$7.50	30.6	91.9	6.58
B.....	4.66	20	35	11:40	163	193	9.66	27.6	82.8	5.92
C.....	4.66	20	52 $\frac{1}{2}$	17:30	245	206	10.32	19.6	58.9	4.21
D.....	4.66	20	24	6:00	112	133	6.65	27.7	110.8	5.92
E.....	4.66	20	42	14:00	195	206	10.32	24.6	73.7	5.29
F.....	10.034	43	19	13:37	191	120	6.00	31.4	44.04	3.14
G.....	2.8	12	27	5:24	76	226	11.30	41.8	208.8	14.88

TABLE V*

LINE	LENGTH OF HALF ROUND TRIP MILES	MILES PER DAY	HALF ROUND TRIPS PER DAY	NECESSARY FOR PROFITABLE OPERATION			ACTUAL REVENUE PER DAY	LOSS PER DAY
				Passengers per Half Round Trip	Revenue per Half Round Trip	Revenue per Day		
A.....	2.33	114	49	4.5	\$0.225	\$11.03	\$7.50	\$3.53
B.....	2.33	163	70	4.0	0.200	14.00	9.66	4.34
C.....	2.33	245	105	3.5	0.185	19.43	10.32	9.11
D.....	2.33	112	48	4.5	0.225	10.80	6.65	4.15
E.....	2.33	195	84	3.7	0.185	15.54	10.32	5.22
F.....	5.02	191	38	8.0	0.400	15.20	6.00	9.20
G.....	1.40	76	54	3.3	0.165	12.21	11.30	0.91
Average	2.45	157	64	3.15	0.225	\$14.03	\$8.82	\$5.21

* Table V indicates an average loss per day of \$5.21 per car, if account is taken of all charges which should properly be made against operation. If, however, only "out-of-pocket" costs are considered, which will amount to about 5.8 cents per mile, the expenses for the average car will be \$9.11 per day, which with revenues of \$8.82 gives a deficit of only 29 cents per day.